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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
LEO, LEONARD R				
ART UNIT		PAPER NUMBER		
3744				
NOTIFICATION DATE		DELIVERY MODE		
11/14/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/543,155

Applicant(s)

YAMAUCHI, SHINOBU

Examiner

Leonard R. Leo

Art Unit

3744

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 4, 7, 9, 12-14, 24-26 and 34-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 8, 10, 11, 15-23, 27-33 and 41-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 7/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of the species I of Figure 1 (i.e. fins between tubes), subspecies IIA of Figure 1 (i.e. corrugated fin), and subspecies IB of Figure 3 (i.e. semi-elliptic) in the reply filed on August 25, 2008 is acknowledged. The traversal is on the ground(s) that there would be no burden on the Examiner to search and examine all species and subspecies. This is not found persuasive because the Examiner believes there would be a serious burden to search and exam two species with three subspecies (group A) and five subspecies (group B), considering the vast number of permutations of combination of species and subspecies. There would be no burden, if applicant stated for the record the species and subspecies to be obvious variants of one another.

The requirement is still deemed proper and is therefore made FINAL.

Claims 34-40 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim.

Claims 4, 7, 9, 12-14 and 24-26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected subspecies, there being no allowable generic or linking claim.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "heat transfer plate ... thinner toward a downstream side" in claims 2, 15, 17, 27, 29, 31 and 33 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 6 and 41-43 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka et al (60-082787). Regarding claims 42-43, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the

claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 15/3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (60-082787) in view of Tanaka et al (60-082786).

Tanaka et al ('787) discloses all the claimed limitations except the outlet side edge becoming thinner toward the downstream side.

Tanaka et al ('786) discloses a heat exchanger comprising a plurality of tubes 3 and a plurality of fins 4 having an outlet side edge becoming thinner toward the downstream side for the purpose of improving the heat transfer rate by lowering the pressure loss (constitution).

Since Tanaka et al ('787) and Tanaka et al ('786) are both from the same field of endeavor and/or analogous art, the purpose disclosed by Tanaka et al ('786) would have been recognized in the pertinent art of Tanaka et al ('787).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Tanaka et al ('787) an outlet side edge becoming thinner toward the downstream side for the purpose of improving the heat transfer rate by lowering the pressure loss as recognized by Tanaka et al ('786).

Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (60-082787) in view of Kadle.

The device of Tanaka et al ('787) lacks the fin being corrugated.

Kadle (Figures 2 and 5) discloses a heat exchanger comprising a plurality of tubes 26, 46 and a plurality of fins 34, 48 for the purpose of achieving a desired heat exchange. The corrugated fin of Figure 2 and the plate fin of Figure 5 are obvious variants of one another.

Since Tanaka et al ('787) and Kadle are both from the same field of endeavor and/or analogous art, the purpose disclosed by Kadle would have been recognized in the pertinent art of Tanaka et al ('787).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Tanaka et al ('787) a corrugated fin for the purpose of achieving a desired heat exchange as recognized by Kadle. Further, it would have been obvious to one of ordinary skill in the art to simply substitute one known element for another to obtain predictable results. *KSR Int'l Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1395 (2007)

Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (60-082787) in view of Kitahara.

The device of Tanaka et al ('787) lacks the fin side edge being curved.

Kitahara (Figures 3-4) discloses a heat exchanger comprising a plurality of fins 2 having a semielliptic upstream side edge for the purpose of improving heat transfer efficiency (abstract).

Since Tanaka et al ('787) and Kitahara are both from the same field of endeavor and/or analogous art, the purpose disclosed by Kitahara would have been recognized in the pertinent art of Tanaka et al ('787).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Tanaka et al ('787) a semielliptic upstream side edge for the purpose of improving heat transfer efficiency as recognized by Kitahara. Further, It would have been obvious to one of ordinary skill in the art to simply substitute one known element for another to obtain predictable results. *KSR Int'l Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1395 (2007)

Claims 16, 18-23, 28, 30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori in view of Kitahara.

Mori discloses all the claimed limitations except louvers with inlet side edges becoming thinner toward the upstream side.

Kitahara a heat exchanger comprising a plurality of fins 2 having a thinner upstream side edge for the purpose of improving heat transfer efficiency (abstract).

Since Mori and Kitahara are both from the same field of endeavor and/or analogous art, the purpose disclosed by Kitahara would have been recognized in the pertinent art of Mori.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Mori a thinner upstream louver side edge for the purpose of improving heat transfer efficiency as recognized by Kitahara. Further, It would have been obvious to one of ordinary skill in the art to simply substitute one known element for another to obtain predictable results. *KSR Int'l Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1395 (2007)

Regarding claims 19 and 21, Figure 4 of Mori discloses fin 4 is corrugated.

Regarding claims 22-23, as applied to claims 10-11 above, Kitahara discloses fins 2 having a semielliptic upstream side edge.

Regarding claims 28, 30 and 32, to employ a thinner upstream side edge on any part of the fin encountering the air flow would have been obvious to one of ordinary skill in the art. Further, it would have been obvious to one of ordinary skill in the art to simply substitute one known element for another to obtain predictable results. *KSR Int'l Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1395 (2007)

Claims 17, 27, 29, 31 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori in view of Kitahara as applied to claims 16, 18-23, 28, 30 and 32 above, and further in view of Tanaka et al (60-082786) as applied to claims 2 and 15/3 above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard R. Leo whose telephone number is (571) 272-4916. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/ LEONARD R. LEO /
PRIMARY EXAMINER
ART UNIT 3744

November 14, 2008